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ABSTRACT

This study is part of an on-going research project to assess differences in educational attainment when controlling for race, sex, and socioeconomic status. The National Educational Longitudinal Survey (NELS) 1988 of 8th graders and a survey of 10th graders, High School and Beyond 1980-82 (HSB), were utilized to obtain data that were then analyzed. This research found that socioeconomic status determined educational outcomes more than any other variable. This result is in keeping with the findings in previous research. In addition, the study found that the school performance of low socioeconomic status boys is not as good as that of girls from low socioeconomic backgrounds in the eighth grade sample. This finding was consistent across racial and ethnic groups. The finding did not hold true in the high school sample however. Although this result was due in part to the fact that many low performing boys may have dropped out, those boys who remained in school made considerable gains relative to girls as they approached graduation. Boys from higher socioeconomic homes did as well as or better than girls in both data sets. Nevertheless, girls expressed a greater interest in college, especially girls from higher socioeconomic backgrounds. Black and Hispanic girls were more likely to take advanced placement examinations. This may reflect the better employment opportunities many boys have right after high school. Many Black young men and some Hispanics express interest in the military as an alternative to college. (DK)

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# THE INTERACTION OF RACE, GENDER, AND SOCIOECONOMIC STATUS IN EDUCATION OUTCOMES

by Lynn C. Burbridge

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**Abstract**

This study is part of an on-going research project to assess differences in educational attainment when controlling for race, sex, and socioeconomic status (SES). It analyzed data from the National Educational Longitudinal Survey (NELS) of eighth graders and from a survey of high school sophomores, High School and Beyond (HSB). In keeping with previous research the analysis found that SES, more than any other variable, determines educational outcomes. In addition, the study found that the school performance of low-SES boys is not as good as that of low-SES girls in the eighth grade sample. This was true across racial and ethnic groups. This was not found in the high school sample, partly because many low-performing boys may have dropped out. Nevertheless, those boys who remain in school make considerable gains relative to girls as they approach graduation. In both data sets high-SES boys do as well as or better than girls. Nevertheless, girls are more likely to express an interest in going to college. More detail on differences by race and sex are provided.

**Introduction**

In light of current policy concerns about the problems of inner-city black males, it is interesting that very little research has focused on differences in educational attainment by race and gender. Further, since researchers have often "confounded socioeconomic status with minority group membership" within-race differences by socioeconomic status are often ignored.[1] An examination of published data, for example, presents information on blacks compared to whites, or girls compared to boys but it is exceedingly difficult to find separate information on black girls and boys. More detail by socioeconomic status is even rarer.

Nevertheless, some early studies have found that gender differences in reading achievement were most pronounced among low-income or low-achieving students.[2] There is also some evidence that those minority boys who remain in school catch up and surpass girls in test scores as they approach graduation.[3] Nevertheless, more girls, particularly minority girls, go on to college.[4]

Data examined in this paper confirm this rather contradictory picture. Preliminary analysis of data from the National Educational Longitudinal Survey clearly show gender differences in test scores and other indices of school achievement (favoring girls) among low socioeconomic students. Data from High School and Beyond suggest that those boys who remain in school do as well as or better than girls by the time of graduation, regardless of race and particularly among high socioeconomic students. Nevertheless, girls have higher expectations to go to college across racial groups and regardless of socioeconomic status.

The analysis suggests that boys in general may not expect a college education to pay off for them to the extent that girls do. But also, there are racial differences in alternatives

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1. D. Scott-Jones and M.L. Clark, "The School Experiences of Black girls: The Interaction of Gender, Race, and Socioeconomic Status," Phi Delta Kappan, March 1986, pp. 520-526.

2. See discussion in M. C. Hogrebe, S. L. Nist, and I. Newman, "Are There Gender Differences in Reading Achievement? An Investigation Using the High School and Beyond Data," Journal of Educational Psychology, 77, 1985; Bruce R. Hare, "Black Girls: A Comparative Analysis of Self-Perception and Achievement by Race, Sex and Socioeconomic Background," (Baltimore, MD: The Johns Hopkins University Center for Social Organization of Schools, 1979).

3. L. F. Winfield and Valerie E. Lee, "Gender Differences in Reading Proficiency: Are They Constant Across Racial Groups," presented at the Annual Meeting of the American Psychological Association, Washington, D.C., August 26, 1986.

4. Valora Washington and Joanna Newman, "Setting Our Own Agenda: Exploring the Meaning of Gender Disparities Among Blacks in Higher Education," Journal of Negro Education, Vol. 60, No.1, 1991.

to college chosen by boys: white and Hispanic boys more often expect to work, while many black boys hope to go into the military. Thus, the labor market seems to present girls and boys with a different picture regarding the value of a college education and to boys from different racial backgrounds regarding alternatives to college.

**Data from the National Education Longitudinal Survey (NELS) 1988**

In 1988 a survey of a nationally representative sample of eighth graders was conducted, under the auspices of the U.S. Department of Education.[5] Minorities were over-sampled to insure the reliability of the data for these groups. Subsequent follow-ups will be conducted. Unpublished tabulations were made available examining a variety of achievement measures by race, sex, and socioeconomic status.[6]

Grades. An examination of grade quartiles (Table 1) indicates that across race and ethnic groups girls get better grades than boys. Girls are less likely to be in the lowest grade quartile (except for high-SES Asians for whom girls and boys are similar) and more likely to be in the highest grade quartile (except for low-SES Hispanics for whom girls and boys are similar). It is interesting to note that when controlling for socioeconomic status, most racial differences wash out. In fact low-SES whites are more likely to be in the lowest quartile than low-SES blacks. Generally, the distribution among quartiles varies as much by sex as it does by race, the primary exception being the overall better performance of Asians and the small percentage of high-SES white and American Indian males in the highest grade quartile.

The effect of socioeconomic status on educational outcomes can be found throughout the education literature. For example, when controlling for socioeconomic status, blacks and Hispanics are less likely to drop out of school than similar whites and are more likely to go on to college.[7] Research also indicates that blacks and Hispanics are more likely to choose an academic curriculum in high school versus a vocational one, when adjusting for SES, and that blacks are more likely to attend a four-year college versus a two-year college or proprietary school when adjusting for SES.[8]

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5. For a discussion of the survey see National Center for Education Statistics, A Profile of the American Eighth Grader, (Washington, D.C.: U. S. Government Printing Office, 1990.)

6. In the NELS, SES is a composite variable based on father's education, mother's education, father's occupation, mother's occupation, and family income.

7. Lois Weis, Eleanor Farrar, and Hugh G. Petrie, Dropouts from School: Issues Dilemmas and Solutions, (Albany: State University of New York Press, 1989); Thomas B. Hoffer, "Retention of Hispanic American High School Youth," in Teresa McKenna and Flora Ida Ortiz, eds., The Broken Web.

8. Paul B. Campbell, Karen S. Basinger, Mary Beth Dauner, Marie A. Parks, "Outcomes of Vocational Education for Women, Minorities, the Handicapped, and the Poor," (Columbus, Ohio: National Center for Research in Vocational Education).

Table 1
Grade Quartile by Race, Sex, and SES
Eighth Graders, 1988

| | Lowest Quartile | Second Quartile | Third Quartile | Fourth Quartile |
|---|---|---|---|---|
| **Low SES** | | | | |
| American Indian | | | | |
| Females | 42.4 | 26.2 | 22.7 | 8.7 |
| Males | 45.0 | 32.2 | 18.7 | 4.2 |
| Asian | | | | |
| Females | 27.5 | 25.7 | 23.5 | 23.3 |
| Males | 32.4 | 24.9 | 23.8 | 19.0 |
| Black | | | | |
| Females | 29.3 | 31.2 | 28.2 | 11.4 |
| Males | 37.3 | 30.7 | 23.7 | 8.3 |
| Hispanic | | | | |
| Females | 35.2 | 30.1 | 24.2 | 10.6 |
| Males | 40.0 | 27.3 | 22.3 | 10.5 |
| White | | | | |
| Females | 35.9 | 29.5 | 23.9 | 10.7 |
| Males | 45.0 | 26.5 | 19.3 | 9.2 |
| **High SES** | | | | |
| American Indian | | | | |
| Females | 12.2 | 18.4 | 18.6 | 50.8 |
| Males | 16.4 | 29.9 | 41.5 | 12.3 |
| Asian | | | | |
| Females | 6.3 | 8.4 | 17.6 | 67.7 |
| Males | 6.7 | 11.6 | 21.2 | 60.5 |
| Black | | | | |
| Females | 10.1 | 17.3 | 29.5 | 43.1 |
| Males | 15.3 | 23.7 | 28.2 | 32.8 |
| Hispanic | | | | |
| Females | 11.1 | 15.3 | 25.4 | 48.1 |
| Males | 17.6 | 15.9 | 33.1 | 33.4 |
| White | | | | |
| Females | 9.1 | 14.9 | 26.1 | 49.8 |
| Males | 16.4 | 29.9 | 41.5 | 12.3 |

Source: Unpublished tabulations from the NELS.

Test Scores. Unlike the data on grades, that on tested proficiency in reading and math shows more pronounced gender differences among low-SES students than among high-SES students. Low-SES boys are significantly more likely to read below basic than low-SES girls across all racial and ethnic groups (Table 2). There are also gender differences among high-SES students, but very few in this group read below basic. There are much smaller gender differences among those reading at an advanced level. Racial differences are apparent among high-SES students, however, with Asians and whites scoring higher than blacks, Hispanics, or American Indians.

Tests of math proficiency also show low-SES boys more likely to score below basic than low-SES girls, although they are also more likely to score at an intermediate and advanced level (with the exception of black males). High-SES males, across all racial and ethnic groups, are more likely than high-SES girls to test as advanced in math. As with reading, Asians and whites are more likely to be advanced in math.

Thus while data on grades show girls doing better than boys across racial and ethnic groups and in spite of SES, test scores present a different picture. The largest gender differences favoring girls are found among low-SES students. Among high-SES students gender differences overwhelmingly favor boys in math, with littler or no gender differences in reading. Racial differences are found in math and reading, however.

Of course, students are already far along in their education by the time they get to the eighth grade. Many of the problems identified as affecting minority boys start much earlier. Unfortunately, data from the Office of Civil Rights of the U.S. Department of Education on participation in special education programs for the physically and mentally disabled do not give information by race and sex; they do indicate that special education students are disproportionately minority (particularly blacks) and disproportionately male, suggesting that minority males may be significantly over-represented in these programs. The over-representation of males is interesting since recent medical evidence indicates that males are not more likely than girls to be educationally handicapped, in spite of the conventional wisdom.[9] If this is the case, schools are doing a great disservice to minority boys.

Data from the NELS indicates that low-SES boys are much more likely to have been kept back at least one grade (Table 4). When controlling for SES, the percentages for black, white and Hispanic males are surprisingly similar. The gender differences are quite significant; girls are much less likely to be held back. Interestingly, the smallest gender differences are found among low-SES blacks and high-SES Asians.

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9. S. Shaywitz, "Prevalence of Reading Disability in Boys and Girls," Journal of the American Medical Association, Volume 264 (August 1990).

In summary, data from the NELS indicates that SES is the greatest source of variation in outcomes. Girls also do better than boys, although test scores indicate that gender differences are most dramatic among low-SES students. Racial differences persist in test scores even when adjusting for SES. More importantly, since blacks and Hispanics are more likely to be of low socioeconomic status, the consequences of class fall more heavily on them. This includes the possibility that gender differences favoring girls may be more pervasive for these groups.

Data from High School and Beyond indicate, however, that many of these boys catch up to girls overtime, even when accounting for those who dropout.

**Baseline Data from High School and Beyond (HSB)**

High School and Beyond surveyed sophomores and seniors in 1980. Follow-up data are also available for 1982 and 1984.[10] The 1980 sophomores cohort that is analyzed here represents a different, earlier cohort than the eighth graders surveyed in the NELS. (These sophomores were in the eighth grade in 1978, ten years earlier.) Thus some care must be used in interpreting these data in relation to the NELS.

Grades. As in the NELS, HSB indicates that girls get better grades than boys across all races, even when controlling for SES.[11] (The one exception are American Indians, but the sample sizes are so small the results are not entirely reliable.) The difference in the percentage of girls and boys receiving A's and B's narrow for high-SES students. For high-SES blacks, the percentage of girls and boys receiving A's and B's are virtually identical. Racial differences are also more apparent in these data: Asians receive the highest grades, followed by whites and American Indians, and then blacks and Hispanics. Unlike most of the other race-sex groups, high-SES black girls are no more likely to get A's and B's than low-SES black girls.

Test Scores. Test score data for sophomores indicate no gender differences even when controlling for socioeconomic status. Boys are not more likely than girls to be in the lowest reading categories and, in some cases, are more likely to be in the highest category. The primary exception is Hispanics where high-SES females are more likely to be in the fourth reading quartile than high-SES males. While no gender differences were found for low-SES blacks, high-SES black males were more likely to be in the highest reading quartile than high-SES black females.

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10. Information on these data can be found in Center for Education Statistics, High School and Beyond, 1980 Sophomore Cohort Third Follow-up: Data File User's Manual, (Washington, D.C.: U.S. Department of Education, 1987).

11. In the HSB, SES is a composite of father's occupation, father's education, mother's education, family income, and material possessions in the household.

**Table 2**
**Reading Proficiency by Race, Sex and SES**
**Eighth Graders, 1988**

| | Below Basic | Basic | Advanced |
|---|---|---|---|
| Low-SES | | | |
| American Indian | | | |
| Females | 37.78 | 58.72 | 3.51 |
| Males | 38.58 | 56.51 | 4.92 |
| Asian | | | |
| Females | 30.12 | 62.33 | 7.55 |
| Males | 35.96 | 59.06 | 4.98 |
| Black | | | |
| Females | 28.13 | 63.87 | 8.00 |
| Males | 32.44 | 60.44 | 7.11 |
| Hispanic | | | |
| Females | 27.58 | 64.65 | 7.77 |
| Males | 32.02 | 61.87 | 6.11 |
| White | | | |
| Females | 20.78 | 71.33 | 7.89 |
| Males | 26.85 | 65.32 | 7.83 |
| High-SES | | | |
| American Indian | | | |
| Females | -- | 43.51 | 56.49 |
| Males | -- | 47.84 | 52.16 |
| Asian | | | |
| Females | 2.04 | 37.93 | 60.03 |
| Males | 1.67 | 39.93 | 58.40 |
| Black | | | |
| Females | 1.35 | 45.82 | 52.83 |
| Males | 1.80 | 44.81 | 53.40 |
| Hispanic | | | |
| Females | 1.26 | 48.12 | 50.61 |
| Males | 2.02 | 47.70 | 50.28 |
| White | | | |
| Females | 1.14 | 37.67 | 61.19 |
| Males | 1.14 | 40.13 | 58.74 |

Source: Unpublished tabulations from the NELS.

**Table 3**
**Math Proficiency by Race, Sex and SES**
**Eighth Graders, 1988**

| | Below Basic | Basic | Intermediate | Advanced |
|---|---|---|---|---|
| Low-SES | | | | |
| American Indian | | | | |
| Females | 37.62 | 58.56 | 3.81 | * |
| Males | 41.15 | 52.61 | 6.23 | * |
| Asian | | | | |
| Females | 24.02 | 64.49 | 9.89 | 1.59 |
| Males | 36.14 | 47.37 | 14.23 | 2.26 |
| Black | | | | |
| Females | 33.38 | 57.23 | 9.26 | .13 |
| Males | 40.26 | 52.20 | 7.33 | .21 |
| Hispanic | | | | |
| Females | 36.61 | 55.20 | 8.06 | .13 |
| Males | 40.40 | 48.73 | 10.36 | .51 |
| White | | | | |
| Females | 30.99 | 60.26 | 8.33 | .43 |
| Males | 35.78 | 51.01 | 11.91 | 1.30 |
| High-SES | | | | |
| American Indian | | | | |
| Females | * | 32.21 | 41.19 | 26.60 |
| Males | 5.03 | 32.13 | 47.23 | 15.61 |
| Asian | | | | |
| Females | 1.87 | 19.39 | 25.51 | 53.23 |
| Males | 1.27 | 8.47 | 29.30 | 60.96 |
| Black | | | | |
| Females | 3.12 | 33.50 | 44.47 | 18.90 |
| Males | 3.94 | 27.83 | 42.96 | 25.27 |
| Hispanic | | | | |
| Females | 4.00 | 40.65 | 33.28 | 22.08 |
| Males | 2.07 | 28.84 | 36.99 | 32.10 |
| White | | | | |
| Females | 2.93 | 27.84 | 33.45 | 35.78 |
| Males | 2.51 | 22.97 | 35.02 | 39.50 |

Source: Unpublished tabulations from the NELS.

**Table 4**
**Repeated at least One Grade by Race, Sex, and SES**
**Eighth Graders, 1988**

| Low SES | Female | Male |
|---|---|---|
| American Indian | 27.1 | 40.8 |
| Asian | 14.7 | 26.1 |
| Black | 28.5 | 34.1 |
| Hispanic | 23.0 | 34.4 |
| White | 24.3 | 32.6 |
| **High SES** | | |
| American Indian | 3.4 | 16.9 |
| Asian | 4.9 | 5.3 |
| Black | 6.8 | 10.2 |
| Hispanic | 9.4 | 12.7 |
| White | 4.7 | 10.1 |

Source: Unpublished data from the NELS.

Table 5
Grades by Race, Sex, and SES
Sophomores, 1980

| | A | A-/B | B-/C | C-/D | F |
|---|---|---|---|---|---|
| **Low SES** | | | | | |
| American Indian | | | | | |
| Females | 4.5 | 44.4 | 41.7 | 9.5 | -- |
| Males | 7.7 | 47.8 | 33.0 | 8.7 | 2.8 |
| Asian | | | | | |
| Females | 15.4 | 50.5 | 31.1 | 3.0 | -- |
| Males | 9.2 | 25.8 | 52.2 | 12.0 | -- |
| Black | | | | | |
| Females | 4.5 | 36.6 | 39.5 | 12.6 | 1.9 |
| Males | 2.2 | 21.1 | 59.9 | 15.4 | 1.4 |
| Hispanic | | | | | |
| Females | 3.1 | 33.3 | 46.3 | 14.3 | 3.0 |
| Males | 3.6 | 27.7 | 46.8 | 20.7 | 1.1 |
| White | | | | | |
| Females | 11.3 | 43.6 | 35.8 | 9.2 | .1 |
| Males | 7.8 | 33.8 | 44.2 | 14.1 | .1 |
| **High SES** | | | | | |
| American Indian | | | | | |
| Females | -- | 59.0 | 29.7 | 11.3 | -- |
| Males | 5.3 | 13.0 | 65.7 | 16.0 | -- |
| Asian | | | | | |
| Females | 29.7 | 43.5 | 23.2 | 3.6 | -- |
| Males | 25.2 | 41.5 | 28.6 | 4.7 | -- |
| Black | | | | | |
| Females | 8.2 | 31.4 | 55.3 | 5.0 | .1 |
| Males | 7.5 | 31.2 | 51.8 | 9.1 | .5 |
| Hispanic | | | | | |
| Females | 10.8 | 35.7 | 47.4 | 6.1 | -- |
| Males | 7.0 | 26.7 | 52.8 | 11.3 | -- |
| White | | | | | |
| Females | 20.7 | 46.0 | 30.0 | 3.2 | .2 |
| Males | 14.6 | 41.5 | 36.9 | 6.7 | .4 |

Source: High School and Beyond, Sophomore Cohort.

**Table 6**
**Reading Test Scores by Race, Sex, and SES**
**Sophomores, 1980**

| | Lowest Quartile | Second Quartile | Third Quartile | Fourth Quartile |
|---|---|---|---|---|
| Low SES | | | | |
| American Indian | | | | |
| Females | 51.7 | 23.5 | 9.4 | 15.4 |
| Males | 50.6 | 19.2 | 16.6 | 13.6 |
| Asian | | | | |
| Females | 39.3 | 19.0 | 29.4 | 12.3 |
| Males | 41.9 | 22.5 | 20.9 | 14.7 |
| Black | | | | |
| Females | 63.3 | 20.3 | 11.6 | 4.8 |
| Males | 61.7 | 20.9 | 12.5 | 4.9 |
| Hispanic | | | | |
| Females | 60.2 | 24.4 | 12.0 | 3.4 |
| Males | 55.4 | 21.4 | 17.3 | 5.9 |
| White | | | | |
| Females | 25.3 | 25.7 | 31.0 | 18.0 |
| Males | 20.9 | 26.1 | 32.4 | 20.6 |
| High SES | | | | |
| American Indian | | | | |
| Females | 45.1 | 36.9 | 2.2 | 15.9 |
| Males | 24.8 | 29.8 | 27.1 | 18.3 |
| Asian | | | | |
| Females | 16.8 | 12.2 | 37.9 | 33.1 |
| Males | 20.4 | 13.1 | 33.2 | 33.4 |
| Black | | | | |
| Females | 42.3 | 21.0 | 23.7 | 12.9 |
| Males | 42.8 | 20.3 | 16.7 | 20.2 |
| Hispanic | | | | |
| Females | 33.7 | 25.4 | 23.6 | 17.3 |
| Males | 30.4 | 27.0 | 29.9 | 12.8 |
| White | | | | |
| Females | 8.7 | 18.5 | 35.8 | 36.9 |
| Males | 10.4 | 16.6 | 35.4 | 37.5 |

Source: High School and Beyond, Sophomore Cohort.

On math tests results are similar. Among low-SES students gender differences were small and even favored males among whites. With high-SES students, gender differences favor males. In both reading and math, racial differences are apparent, Asians and whites doing considerably better than blacks and Hispanics even when controlling for SES.

These results are rather puzzling given the results from NELS and the conventional wisdom that minority girls are doing better than minority boys. These results are consistent with other studies examining gender differences in the HSB data, however.[12] One explanation is that as students get older, boys do better; so some of the differences associated with younger students evaporate.

Another explanation is that many low-achieving boys dropout even before the 10th grade. For example, there is some evidence that as many as forty percent of Hispanics drop out before the tenth grade.[13] In addition, recent results from the 1990 follow-up of the NELS indicates that 6.8 percent of students drop-out before the 10th grade and that drop-outs are disproportionately male, non-white, and from inner-city schools.[14] If this is the case, average scores will rise for those remaining in school, without any substantive improvement in the achievement of those who remain.

Interestingly, for Hispanics the bias in the base year HSB (weighted) sample is in favor of boys: 8.9 percent of the sample are low-SES Hispanic boys and 7.5 percent are low-SES Hispanic girls; 4.3 percent are high-SES Hispanic boys and 3.5 percent are high-SES Hispanic girls. Among low-SES blacks and whites there are larger percentages of girls relative to boys. There are 22 percent more low-SES black girls than low-SES black boys in the weighted sample and there are 16 percent more low-SES white girls than low-SES white boys in the weighted sample. Among high-SES students, black and white boys are in the same proportion as black and white girls.

A third explanation is that the tests in HSB do not adequately reflect achievement differences. For example, a study of reading proficiency by Winfield and Lee, using the National Assessment of Educational Progress (NAEP) shows significant gender differences favoring girls in the 11th grade (for 1983-1984) that contradict HSB results.[15] They also found evidence of a narrowing of these gender differences, however, between the 8th and 11th grades.

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12. For example, see Winfield and Lee, Gender Differences in Reading Proficiency and Hogrebe, et al., Are There Gender Differences.

13. National Commission on Secondary Schooling for Hispanics, Make Something Happen: Hispanics and Urban High School Reform, (New York: The Hispanic Policy Development Project, 1984.)

14. "First National Study of Young Dropouts Finds 6.8% Leave Before the 10th Grade," Education Week, September 25, 1991.

15. Winfield and Lee, Gender Differences in Reading Proficiency, op. cit.

**Follow-up of the High School and Beyond Sophomore Cohort**

In spite of some of the questions that have been raised about the HSB data, since it is longitudinal and retests students two years later it is useful for examining the extent to which gender differences narrow over time, at least for those who are in the sample and who remain in the sample two years later.

The 1982 follow-up of sophomores is admittedly a select group. By the time they become seniors, significant numbers of students have dropped out of school and the dropouts are disproportionately black and Hispanic. Interestingly, the ratio of girls to boys in the weighted samples changed little. As discussed earlier, biases were already evident in the base year sample and for blacks and whites these stayed fairly constant: low-SES black and white boys were under-represented relative to low-SES black and white girls by the same percent difference as in the base year sample. For Hispanics there was a narrowing in the under-representation of girls relative to boys.

Test Scores. Nevertheless, it is useful to assess the extent to which gender differences narrow over time, at least among those who remained in school throughout high school. Base-year to follow-up changes were analyzed, deleting those who dropped out from the base-year sample. According to Table 8, boys show larger mean score gains in math relative to girls, while no consistent patterns are found in reading: gain scores are similar for girls and boys with the exception of American Indians and high-SES Asians.

The impact of differential dropout rates and mean score gains of boys who remain in school is evidenced in the distribution of students by race, sex, and SES within test quartiles (Tables 9 and 10). In reading proficiency there are very few gender differences within any racial group among low-SES students and, with the exception of Asians, males are more likely to be in the highest quartiles. Among high-SES students, males are less likely to be in lower reading quartiles and more likely to be in higher reading quartiles, with the exception of Hispanics. These results are most dramatic for high-SES blacks and American Indians, among whom girls are at a decided disadvantage.

In math the results are similar, except even among low-SES students gender differences favoring males are quite apparent. Girls are more likely to be in the lowest quartiles and less likely to be in the highest quartile regardless of race/ethnicity or SES. The exception is low-SES blacks where girls and boys are more similar than they are different. Among high-SES blacks, males have a decided advantage as do all males relative to females.

Grades. In spite of test score results, girls still consistently obtain higher grades than boys. There is one important exception, however. Among high-SES blacks, boys are more likely to report they have mostly A's and B's than girls.

Racial differences persist, with whites and Asians doing better than blacks and Hispanics. The performance of American Indians is less predictable; the greater variation, perhaps, reflecting the small sample sizes.

**Table 7**
**Math Test Scores by Race, Sex, and SES**
**Sophomores, 1980**

| | Lowest Quartile | Second Quartile | Third Quartile | Fourth Quartile |
|---|---|---|---|---|
| **Low SES** | | | | |
| American Indian | | | | |
| Females | 46.2 | 24.4 | 20.4 | 9.0 |
| Males | 47.2 | 26.0 | 21.9 | 5.0 |
| Asian | | | | |
| Females | 24.2 | 30.4 | 16.2 | 29.3 |
| Males | 24.1 | 26.7 | 22.1 | 27.1 |
| Black | | | | |
| Females | 55.6 | 27.6 | 13.9 | 2.9 |
| Males | 61.1 | 23.2 | 10.5 | 5.2 |
| Hispanic | | | | |
| Females | 58.7 | 26.7 | 9.3 | 5.2 |
| Males | 50.9 | 25.8 | 17.2 | 6.1 |
| White | | | | |
| Females | 26.1 | 24.9 | 29.4 | 19.6 |
| Males | 24.7 | 24.8 | 26.3 | 24.2 |
| **High SES** | | | | |
| American Indian | | | | |
| Females | 62.0 | 13.1 | 13.5 | 11.4 |
| Males | 36.2 | 8.6 | 30.9 | 24.4 |
| Asian | | | | |
| Females | 11.5 | 14.1 | 22.2 | 52.2 |
| Males | 11.8 | 15.2 | 14.7 | 58.3 |
| Black | | | | |
| Females | 44.6 | 24.7 | 18.7 | 12.0 |
| Males | 44.8 | 21.6 | 20.6 | 13.1 |
| Hispanic | | | | |
| Females | 37.5 | 24.6 | 26.5 | 11.5 |
| Males | 32.4 | 27.3 | 21.8 | 18.5 |
| White | | | | |
| Females | 11.2 | 18.3 | 32.0 | 38.4 |
| Males | 11.5 | 17.3 | 26.2 | 45.0 |

Source: High School and Beyond, Sophomore Cohort.

Table 8
Mean Score Gain by Race, Sex and SES
Sophomore Cohort, 1980-1982

| Low SES | Reading | Math |
|---|---|---|
| American Indian | | |
| Females | 2.87 | .07 |
| Males | 4.15 | 2.81 |
| Asian | | |
| Females | 3.51 | 1.50 |
| Males | 2.94 | 1.54 |
| Black | | |
| Females | 2.04 | .71 |
| Males | 2.15 | 1.49 |
| Hispanic | | |
| Females | 2.35 | .63 |
| Males | 1.89 | .84 |
| White | | |
| Females | 2.80 | .83 |
| Males | 2.97 | 1.62 |
| **High SES** | | |
| American Indian | | |
| Females | 2.73 | .52 |
| Males | 1.45 | 1.90 |
| Asian | | |
| Females | 1.50 | 1.78 |
| Males | 3.62 | 2.52 |
| Black | | |
| Females | 2.57 | 1.16 |
| Males | 2.85 | 2.37 |
| Hispanic | | |
| Females | 2.86 | 1.00 |
| Males | 2.62 | 1.09 |
| White | | |
| Females | 3.31 | 1.66 |
| Males | 2.81 | 2.25 |

Source: High School and Beyond, Sophomore Cohort.

Table 9
Reading Quartile by Race, Sex, and SES
Sophomore Cohort, 1982 Follow-up

| | Lowest Quartile | Second Quartile | Third Quartile | Fourth Quartile |
|---|---|---|---|---|
| **Low SES** | | | | |
| American Indian | | | | |
| Females | 46.9 | 26.4 | 10.4 | 16.3 |
| Males | 34.1 | 22.3 | 25.0 | 18.6 |
| Asian | | | | |
| Females | 36.2 | 21.2 | 25.4 | 17.2 |
| Males | 30.8 | 27.1 | 30.0 | 12.0 |
| Black | | | | |
| Females | 60.7 | 25.0 | 10.0 | 4.3 |
| Males | 58.9 | 25.7 | 10.4 | 5.0 |
| Hispanic | | | | |
| Females | 59.0 | 25.3 | 11.4 | 4.3 |
| Males | 53.3 | 27.3 | 12.2 | 7.2 |
| White | | | | |
| Females | 21.4 | 34.5 | 26.2 | 17.9 |
| Males | 17.5 | 35.2 | 26.0 | 21.3 |
| **High SES** | | | | |
| American Indian | | | | |
| Females | 45.9 | 35.3 | 2.2 | 16.6 |
| Males | 26.6 | 32.6 | 20.0 | 20.8 |
| Asian | | | | |
| Females | 24.9 | 12.8 | 25.2 | 37.0 |
| Males | 13.8 | 17.7 | 22.7 | 45.7 |
| Black | | | | |
| Females | 32.7 | 36.9 | 18.4 | 12.0 |
| Males | 27.6 | 25.5 | 26.7 | 20.2 |
| Hispanic | | | | |
| Females | 31.4 | 30.4 | 18.5 | 19.7 |
| Males | 28.7 | 29.2 | 26.4 | 15.8 |
| White | | | | |
| Females | 6.9 | 23.6 | 28.5 | 41.0 |
| Males | 8.7 | 23.0 | 26.2 | 42.1 |

Source: High School and Beyond, Sophomore Cohort.

**Table 10**
**Math Quartile by Race, Sex, and SES**
**Sophomore Cohort, 1982 Follow-up**

| | Lowest Quartile | Second Quartile | Third Quartile | Fourth Quartile |
|---|---|---|---|---|
| **Low SES** | | | | |
| American Indian | | | | |
| Females | 51.5 | 19.8 | 25.2 | 3.4 |
| Males | 37.4 | 22.4 | 34.6 | 5.7 |
| Asian | | | | |
| Females | 25.4 | 18.0 | 34.4 | 22.2 |
| Males | 12.3 | 27.6 | 22.3 | 37.8 |
| Black | | | | |
| Females | 52.2 | 27.7 | 16.5 | 3.6 |
| Males | 57.0 | 23.1 | 14.6 | 5.4 |
| Hispanic | | | | |
| Females | 52.8 | 30.9 | 12.9 | 3.4 |
| Males | 46.6 | 28.3 | 16.5 | 8.6 |
| White | | | | |
| Females | 23.8 | 27.8 | 31.3 | 17.2 |
| Males | 18.4 | 25.0 | 31.4 | 25.2 |
| **High SES** | | | | |
| American Indian | | | | |
| Females | 60.0 | 15.1 | 16.3 | 8.6 |
| Males | 28.4 | 15.8 | 24.8 | 31.0 |
| Asian | | | | |
| Females | 6.6 | 21.7 | 20.1 | 51.6 |
| Males | 5.2 | 12.8 | 18.5 | 63.6 |
| Black | | | | |
| Females | 35.3 | 35.6 | 19.5 | 9.6 |
| Males | 33.1 | 24.9 | 20.6 | 21.4 |
| Hispanic | | | | |
| Females | 36.8 | 27.2 | 21.3 | 14.8 |
| Males | 28.0 | 25.1 | 25.7 | 21.2 |
| White | | | | |
| Females | 7.7 | 21.1 | 31.2 | 40.0 |
| Males | 9.5 | 14.8 | 26.9 | 48.8 |

Source: High School and Beyond, Sophomore Cohort.

Table 11
Grades by Sex, Race, and SES
Sophomore Cohort, 1982 Follow-up

| | A | A-/B | B-/C | C-/D | F |
|---|---|---|---|---|---|
| **Low SES** | | | | | |
| American Indian | | | | | |
| Females | 8.7 | 52.4 | 38.4 | .5 | -- |
| Males | 1.6 | 55.8 | 40.6 | 2.8 | -- |
| Asian | | | | | |
| Females | 16.6 | 47.1 | 34.5 | 1.8 | -- |
| Males | 8.3 | 36.8 | 45.6 | 9.3 | -- |
| Black | | | | | |
| Females | 4.1 | 43.1 | 46.6 | 6.1 | -- |
| Males | 4.4 | 25.8 | 58.9 | 10.2 | .6 |
| Hispanic | | | | | |
| Females | 4.0 | 34.0 | 51.7 | 10.1 | .1 |
| Males | 4.8 | 22.3 | 56.2 | 16.1 | .6 |
| White | | | | | |
| Females | 13.6 | 46.6 | 35.6 | 4.1 | .1 |
| Males | 7.7 | 35.7 | 46.8 | 9.4 | .3 |
| **High SES** | | | | | |
| American Indian | | | | | |
| Females | 6.5 | 59.9 | 30.0 | 3.6 | -- |
| Males | 11.3 | 19.6 | 48.3 | 20.7 | -- |
| Asian | | | | | |
| Females | 29.5 | 47.8 | 20.9 | 1.8 | -- |
| Males | 21.9 | 48.8 | 23.9 | 5.3 | -- |
| Black | | | | | |
| Females | 9.2 | 31.1 | 52.4 | 7.2 | -- |
| Males | 5.8 | 42.3 | 39.8 | 13.7 | -- |
| Hispanic | | | | | |
| Females | 10.6 | 43.3 | 40.7 | 5.4 | .1 |
| Males | 8.2 | 24.7 | 60.2 | 6.7 | .3 |
| White | | | | | |
| Females | 20.6 | 53.7 | 23.2 | 2.4 | -- |
| Males | 13.1 | 45.3 | 36.4 | 5.1 | .1 |

Source: High School and Beyond, Sophomore Cohort.

**After-school Plans**

In spite of test score advantages favoring males, girls are more likely to expect to go to college than boys, particularly high-SES girls (Table 12). Among low-SES students gender differences favoring girls are small with two exceptions: among Asians the gender difference in college expectations favor boys and among blacks the gender difference is large and favors girls. Among high-SES students gender differences are larger in favor of girls, with the exception of Hispanics for whom girls and boys express an equal interest in going to college.

One explanation for the seeming contradiction between test scores and educational aspirations is that grades are a better predictor of college preparation. Since girls get better grades, they are more prepared to go to college. It could be argued, however, that girls get better grades because they are more likely to plan to go to college. Many also feel that grades reflect behavior as well as achievement so girls get better grades because they are better behaved.

Another explanation is that college expectations reflect the labor market. Overall, a female college graduate makes the same average earnings as a male high school graduate.[16] Thus females have an incentive to go to college if they wish to keep up with males. But while this is true overall, this is not true among blacks. Black males also require a college degree to do as well as white high school graduates.[17] High-SES black males do in fact have higher college expectations than high-SES white males. In fact, high-SES black males and females have college expectations that are more similar to the college expectations of high-SES Asians than to any other group.

Nevertheless, why these gender differences? Most males express a greater interest in going straight to work than females, which is not surprising given the higher wages many can expect out of high school compared to females. Black males also show a tremendous interest in the military as an alternative to college. Fully 18 percent of low-SES blacks express interest in the military, compared to eight and nine percent, respectively, of whites and Hispanics. Even high-SES blacks are more committed to the military: 8 percent compared to three and five percent, respectively, for whites and Hispanics.

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16. In 1988, women 25 years old or older, working full-time and with four years of college made an average of $25,187 per year; males 25 years old or older, working full-time, but with 4 years of high school made an average of $26,045 per year. National Center for Education Statistics, Digest of Education Statistics, 1990, (Washington, D.C.: U.S. Department of Education, 1991).

17. According to the 1980 Census, a black male 18 years old or older, working full-time year-round and who has four years of college made $18,223 per year; a white male 18 years old or more, working full-time, year-round and who had four years of high school made $18,037 per year. U.S. Bureau of Census, 1980 Census of Population, Volume 2, Subject Reports: Earnings by Occupation and Education, (Washington, D.C: U.S. Department of Commerce, 1984).

If the data are analyzed controlling for reading quartile, the results are similar. Thirty-five percent of black males in the lowest reading quartiles express interest in military employment, compared to fourteen percent of Hispanics in this category and seventeen percent of whites. Twenty-three percent of black males in the top two reading quartiles express expectations for entering the military, compared to sixteen percent of similar Hispanics and seven percent of similar whites. (Comparable differences are found using math quartiles.) Thus, differences in achievement cannot explain racial differences in military expectations. Rather, many black and Hispanic males are opting for the military out of high school, instead of choosing college or civilian employment. More than likely this reflects the perceptions of black young men that they may find greater opportunities for advancement within the military.

Differences in college expectations by race and sex are dramatically shown in those taking advanced placement exams. The advanced placement exams are interesting since, more than likely, they are being taken by high-SES students. Low-SES students, regardless of race or gender, were significantly under-represented in high reading and math quartiles. Plus AP tests are less likely to be offered in low-income school districts.

Black and Hispanic girls are more likely to take the AP exam than black and Hispanic boys. From 56 to 59 percent of Hispanic test-takers are girls and an astounding 64 percent of black AP test takers are girls. For all other groups, boys are as likely as girls to take this exam. An examination of the kinds of exams girls and boys take indicate that girls are more likely to take tests in English and foreign languages than in math and science in comparison to boys. Thus sex-stereotyped patterns persist. Nevertheless, among blacks -- while this pattern holds -- there are still numerically more black girls taking AP exams in math and science than black boys.

This does not appear to be because black and Hispanic girls are being disproportionately assigned to advanced classes relative to black and Hispanic boys. In the HSB data there are few within-race differences in participation by gender.

These results are startling when one considers the results from High School and Beyond indicating that high-SES black boys do better than high-SES black girls in terms of grades and test scores for reading and math. While the AP data presented are for 1990, they represent a trend that has existed at least since 1986 when the College Board began presenting data by race and sex. It is unlikely that the results from HSB in 1982 were significantly different four years later.

Table 12
Plans Following High School by Race, Sex, and SES
Sophomore Cohort, 1982 Follow-up

| Low SES | Work | Homemaker | Training | Military | College | Other |
|---|---|---|---|---|---|---|
| American Indian | | | | | | |
| Females | 26.0 | 3.3 | 16.9 | -- | 27.2 | 26.6 |
| Males | 40.1 | -- | 13.3 | 5.6 | 25.2 | 15.8 |
| Asian | | | | | | |
| Females | 18.6 | -- | 14.9 | 1.9 | 42.5 | 27.2 |
| Males | 21.3 | -- | 14.6 | 3.1 | 52.5 | 8.5 |
| Black | | | | | | |
| Females | 15.2 | 1.5 | 15.5 | 6.5 | 40.5 | 20.7 |
| Males | 19.2 | .6 | 20.4 | 18.6 | 23.7 | 17.5 |
| Hispanic | | | | | | |
| Females | 23.6 | 10.0 | 16.5 | 2.4 | 22.2 | 25.3 |
| Males | 31.8 | 1.1 | 18.1 | 9.1 | 19.0 | 20.8 |
| White | | | | | | |
| Females | 21.0 | 10.6 | 14.8 | 1.4 | 21.2 | 31.0 |
| Males | 25.8 | .2 | 18.2 | 8.4 | 20.4 | 27.0 |
| High SES | | | | | | |
| American Indian | | | | | | |
| Females | 19.5 | 7.9 | 5.6 | -- | 40.6 | 26.5 |
| Males | 12.8 | -- | 33.7 | 1.3 | 14.1 | 38.1 |
| Asian | | | | | | |
| Females | 14.4 | -- | 5.8 | -- | 52.5 | 27.3 |
| Males | 20.5 | 1.4 | 5.3 | .1 | 44.3 | 28.3 |
| Black | | | | | | |
| Females | 8.3 | 1.4 | 12.1 | 1.6 | 49.2 | 27.4 |
| Males | 17.0 | .0* | 11.1 | 8.3 | 40.4 | 23.3 |
| Hispanic | | | | | | |
| Females | 20.3 | 6.2 | 12.4 | 2.3 | 29.9 | 28.9 |
| Males | 23.3 | .6 | 14.3 | 5.3 | 29.7 | 26.9 |
| White | | | | | | |
| Females | 17.3 | 2.9 | 7.5 | .4 | 42.9 | 29.0 |
| Males | 19.1 | .1 | 11.8 | 3.4 | 34.9 | 30.8 |

*less than .1 percent
Source: High School and Beyond, Sophomore Cohort.

Table 13
Advanced Placement Test-Takers
by Race or Ethnicity

| | November 1990 | Percent of Total 1990 | Percent Change 1986-1990 | Percent Female 1990 | Percent Female 1986 |
|---|---|---|---|---|---|
| Total | 323,736 | 100.0 | 41.7 | 51.5 | 49.6 |
| American Indian | 1,170 | .4 | 113.5 | 48.0 | 48.5 |
| Asian | 36,906 | 11.4 | 104.8 | 48.4 | 46.1 |
| Black | 12,924 | 4.0 | 102.7 | 63.5 | 60.3 |
| Mexican-American | 8,640 | 2.7 | 182.7 | 56.6 | 53.9 |
| Puerto Rican | 1,924 | .6 | 87.3 | 59.8 | 55.6 |
| Other Hispanic | 9,266 | 2.9 | 144.9 | 56.1 | 53.7 |
| White | 230,728 | 71.3 | 42.7 | 50.9 | 50.0 |
| Other/Not Specified | 22,178 | 6.9 | -34.6 | 50.5 | 46.8 |

Source: Educational Testing Service

**Summary**

These data indicate an interesting and rather complicated pattern. There is considerable evidence that in lower grades there are gender differences favoring girls in achievement, particularly among low-SES students. Since blacks and Hispanics are disproportionately in this group, this will have disproportionate impact on them. Low-SES boys are more likely to repeat a grade and have lower grades and test scores. Boys and minorities are more likely to be placed in special education classes.

At higher grades gender differences narrow and even favor boys, particularly in math. This is misleading, however, since many low-performing boys drop out of school (in comparison to low-performing girls who drop out to a lesser extent). Nevertheless, real gains are found for boys in all racial and ethnic groups among those who stay in school.

Nevertheless, girls express a greater interest in college, particularly high-SES girls. Black and Hispanic girls are more likely to take Advanced Placement exams. Initially these results are surprising since boys, particularly high-SES boys, have higher test scores than girls. But it may reflect the better employment opportunities many boys have right out of high school, particularly whites. Many black young men and to a lesser extent, Hispanics, express interest in the military as an alternative to college.

**Implications for Policy and Future Research**

These results suggest that gender differences facing low-SES children start at an early age. As children grow older, gender differences may tend to narrow because of differential dropping out and gains boys make as they age. Thus early intervention is clearly implied. There is also the possibility that boys are being assigned to special education classes in percentages that are not warranted, given medical data. This is an area requiring further research. We also need to know more about assignment to these classes by race and sex.

While early intervention is important, these results also suggest that boys who stay in school continue to improve as they get older. It is not possible to know if this would be true for those who dropped out, but it suggests that efforts to keep them in school could pay off as the boys mature. Minority girls, on the other hand, do not seem to make great gains in their last years in high school which should be a cause for concern. High-SES black girls in particular lose ground relative to their male counterparts for reasons that are not entirely clear. There is some evidence that black girls in desegregated schools do less well than black boys.[18] Insofar as high-SES black students are more likely to be in desegregated schools this may be an important reason, but more research is necessary.

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18. S. B. Damico and E. Scott, "Behavior Differences Between Black and White Females in Desegregated Schools," Equity and Excellence, 23.

As has been found in much of the education literature, socioeconomic status has a profound affect on outcomes. This is true across racial groups. Thus policy makers must be cognizant of the educational problems of all low-SES students, including low-SES Asians and low-SES whites.

While the data for American Indians and Asians were suggestive, the sample sizes were too small to feel comfortable about the results. Nevertheless, American Indians and low-SES Asians face important barriers to education that require some attention. More over-sampling would make it possible to give greater attention to the education issues facing these groups.

The analysis implies that labor market opportunities affect the goals students set for themselves. And, as has been suggested by John Ogbu, the goals they set will affect their performance in school.[19] Thus policies to improve achievement for minority youth cannot be separated from policies to improve their labor market opportunities.

Finally, it should be noted that there are several issues that this paper does not address. First, it does not address the issue of violence in and out of school that is so damaging to youth, particularly black and Hispanic boys; this was simply out of the scope of the analysis and the data. Second, the analysis presented thus far is only descriptive. A more sophisticated methodology is needed to examine causal relationships in greater detail. Nevertheless, the results are very suggestive.

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19. John Ogbu, Minority Education and Caste (New York: Academic Press, 1978).